

REMARKS

I. Introduction

In response to the pending Office Action, Applicants have amended claim 1 and added new claim 5 in order to further clarify the present invention. Support for new claim 5 may be found in original claims 1 and 4. No new matter has been added.

For the reasons set forth below, Applicants respectfully submit that all pending claims as currently amended are patentable over the cited prior art.

II. The Rejection of Claims 1-4 Under 35 U.S.C. 103

Claims 1-4 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Shigeto et al. (JP 2001-15106) in view of Motoaki et al. (JP 07-183032). Applicants respectfully submit that Shigeto and Motoaki fail to render the pending claims obvious for at least the following reasons.

With regard to the present invention, amended claim 1 recites an alkaline battery comprising: a positive electrode mixture comprising manganese dioxide and nickel oxyhydroxide as active materials; a negative electrode comprising zinc as an active material; and an alkaline electrolyte, characterized in that the potential of said manganese dioxide relative to a mercury/mercury oxide electrode in a potassium hydroxide aqueous solution having a KOH concentration of 40 wt% is greater than 270 mV.

It is alleged that Motoaki discloses that the range of the surface potential of electrolytic manganese dioxide in 40% KOH is from 240-270 mV. This range and the corresponding reference is also disclosed in the specification of the present application on page 2, lines 12-20. However, both Motoaki and the specification teach away from the use of an electrode with the

stated surface potential range. For example, Motoaki states in paragraph [0014] (computer English translation) that “since the range of the surface potential of usual electrolytic manganese dioxide is 240-270 mV (vs. Hg/HgO (40% KOH)), it need to reduce surface potential.” In addition, the specification teaches that electrolytic manganese dioxide having such a potential (i.e., 240-270mV), is generally used in conventional alkaline batteries having no nickel oxyhydroxide. The present invention discloses a battery that has nickel oxyhydroxide. As such, it appears that the Motoaki reference and the specification teaches away from the present invention. However, claim 1 has been amended so that Motoaki does not overlap the potential of said manganese dioxide relative to a mercury/mercury oxide electrode in a potassium hydroxide aqueous solution having a KOH concentration of 40 wt%. Moreover, Shigeto is not relied upon, and does not remedy this deficiency.

As is well known, in order to establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 USPQ 580 (CCPA1974), and as Shigeto and Motoaki, at a minimum, both fail to teach or suggest an alkaline battery comprising: a positive electrode mixture comprising manganese dioxide and nickel oxyhydroxide as active materials; a negative electrode comprising zinc as an active material; and an alkaline electrolyte, characterized in that the potential of said manganese dioxide relative to a mercury/mercury oxide electrode in a potassium hydroxide aqueous solution having a KOH concentration of 40 wt% is greater than 270 mV, it is submitted that Shigeto and Motoaki, alone or in combination, do not render amended claim 1, or any pending claims dependent thereon, obvious.

Furthermore, claim 4 recites that the concentration of sulfuric acid in said aqueous solution of sulfuric acid is 10 wt% or higher. It was alleged that Motoaki teaches a cleaning

solution of sulfuric acid at 20% concentration in paragraph [0048]. However, the Examiner has misinterpreted Motoaki. The reference discloses that the concentration of sulfuric acid is **0.2 moles/l**. Since concentrated sulfuric acid has a molecular weight of 98 g/mole, an 0.2 mol/l solution is equivalent to a concentration of 1.96% sulfuric acid ($98\text{g/mol} \times 0.2\text{ mol/l} \times 100\text{ml}/1000\text{ml} = 1.96$). This is far below the range cited in claim 4 (10% or greater sulfuric acid). As such, Motoaki fails to teach or suggest the limitations of claim 4 wherein the concentration of sulfuric acid in said aqueous solution of sulfuric acid is 10 wt% or higher. As such, Applicants respectfully request that the § 103 rejection of claim 4 be withdrawn.

III. All Dependent Claims Are Allowable Because The Independent Claim From Which They Depend Is Allowable

Under Federal Circuit guidelines, a dependent claim is nonobvious if the independent claim upon which it depends is allowable because all the limitations of the independent claim are contained in the dependent claims, *Hartness International Inc. v. Simplimatic Engineering Co.*, 819 F.2d at 1100, 1108 (Fed. Cir. 1987). Accordingly, as claims 1 and 4 are patentable for the reasons set forth above, it is respectfully submitted that all pending dependent claims are also in condition for allowance.

As claim 5 incorporates the limitations of original claims 1 and 4, based on the foregoing arguments, Applicants submit that claim 5 is also allowable over the cited prior art.

IV. Conclusion

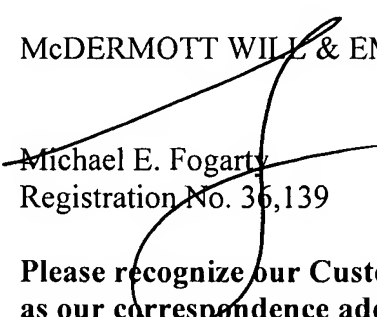
Having fully responded to all matters raised in the Office Action, Applicants submit that all claims are in condition for allowance, an indication of which is respectfully solicited.

Application No.: 10/500,899

To the extent necessary, a petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 500417 and please credit any excess fees to such deposit account.

Respectfully submitted,

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